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IS 2996 (1986): Mounting dimensions of plain grinding wheels by means of hub flanges [PGD 2: Machine Tool Elements and Holding Devices]

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(Reaffirmed 2001)

Indian Standard

MOUNTING DIMENSIONS OF PLAIN GRINDING WHEELS BY MEANS OF HUB FLANGES

(First Revision)

1. Scope — Lays down, having regard to safety requirements, the interchangeability dimensions between hub flanges and grinding wheels, in the case where grinding wheels are mounted by means of hub flanges.

1.1 It is applicable to the following types of plain grinding wheels, having bores between 76·2 and 508 mm:

a) Fettling and sharpening plain wheels,
b) Plain wheels for external cylindrical grinding (except centreless), and
c) Surface plain grinding wheels.

2. Dimensions

2.1 The dimensions for the flanges, the grinding wheels and arrangement for mounting wheels shall be as given in Table 1 read with Fig. 1.

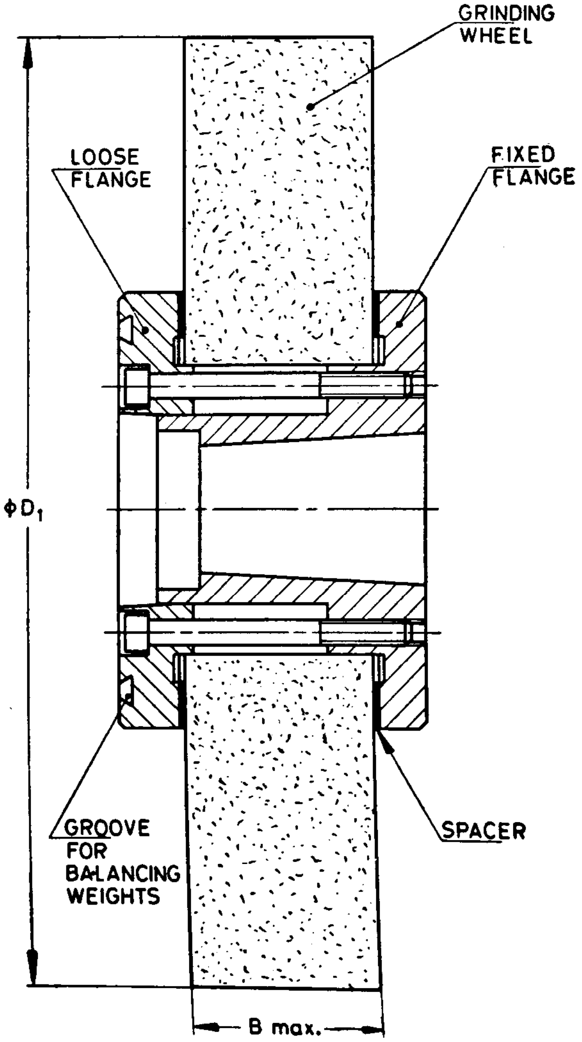

FIG. 1 ARRANGEMENT FOR MOUNTING GRINDING WHEEL ON FLANGES

Machine Tools, Machine Tool Elements and Woodworking Machine Sectional Committee, EDC 11; Machine Tool Basics Subcommittee, EDC 11 : 14 [Ref : Doc : EDC 11 (4332)]

Adopted 22 December 1986 © June 1987, BIS Gr 3

BUREAU OF INDIAN STANDARDS
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TABLE 1 DIMENSIONS FOR HUB FLANGES FOR MOUNTING GRINDING WHEELS

(*Clauses* 2.1, 2.2 *and* 3.2, Fig. 1 and 2)

All dimensions in millimetres.

Grinding Wheel			**Flanges**											**Screws as per IS : 2269§ Property Class 8.8**		
Bore *D* H11	Out-side Dia-meter D_1*	Width *B*† *Max*	Loose Flange *D*	Fixed Flange *D* f7	Out-side Dia-meter D_2	*d*‡ H7/f7	d_1‡ ± 0.1	*l*‡ *Min*	l_1	*a*	a_1	a_2	*b*	Pitch Dia d_2	No. off	d_3
76.2	250	50	76.2 a11	76.2	115	50	40	60	$l_1 \nless B_{max} + 2 \times$ Spacer thickness + 6 mm	11	12	4	12	65	6	M6
	300															
127	250	50	127 a11	127	165	80	63	70		11	12	4	12	110	6	M8
	300															M10
	350	80			175					13	16	6	16		6	
	400															
	450				185					16	20		20		8	
152.4	400	80	152.4 a11	152.4	200	80	63	70		13	16	6	16	130	6	M10
	450				210					16	20		20		8	
	500															
203.2	450	80	203.2 a11	203.2	260	100	80	75		16	20	6	20	180	8	M12
	500															
	600										25					
254	500	100	254 a11	254	325	100	80	80		16	20	6	20	230	8	M12
304.8	500	160	304.8 a11	304.8	365	140	100	90		16	20	6	20	280	8	M16
	600										25					
	750				380					19			25			

304·8	900 1 060	160	304·8 f7	304·8	380	150	120	100	22	25	6	25	280	8 10	M16
355·6	900 1 060	160	355·6 f7	355·6	450	150	120	100	22	25	6	25	325	10	M16
508	1 250	160	508 f7	508	600	150	120	100	25	25	6	32	480	10	M20

*These flanges are also suitable for mounting grinding wheels in inch dimensions with nearest corresponding size.

†In the case of grinding wheel with one or two recesses, the depth of the recesses is to be taken into consideration (*see* **2.1**, **2.2** *and* **3.3**).

‡The dimensions, *d* nominal diameter of loose flange bore; d_1 diameter of fixed flange bore and *l* length of the fixed flange bore are dependent on the diameter of the spindle end. The dimensions *d* and d_1 may also be as per the discretion of the manufacturer.

§Screws as per IS : 2269-1981 'Hexagon socket head cap screws (*second revision*)'.

Dimensional deviation for untoleranced dimensions; medium class according to IS : 2101 (Part 1)-1980 'General tolerances for dimensions and form and position: Part 1 General tolerances for linear and angular dimensions (*second revision*).

2.2 The dimensions for hub flanges shall be as given in Table 1, read with Fig. 2.

2.3 Positions of grooves for placing balancing weights for grinding wheels of size 400 mm and above have been shown in Appendix A.

3. General Requirements

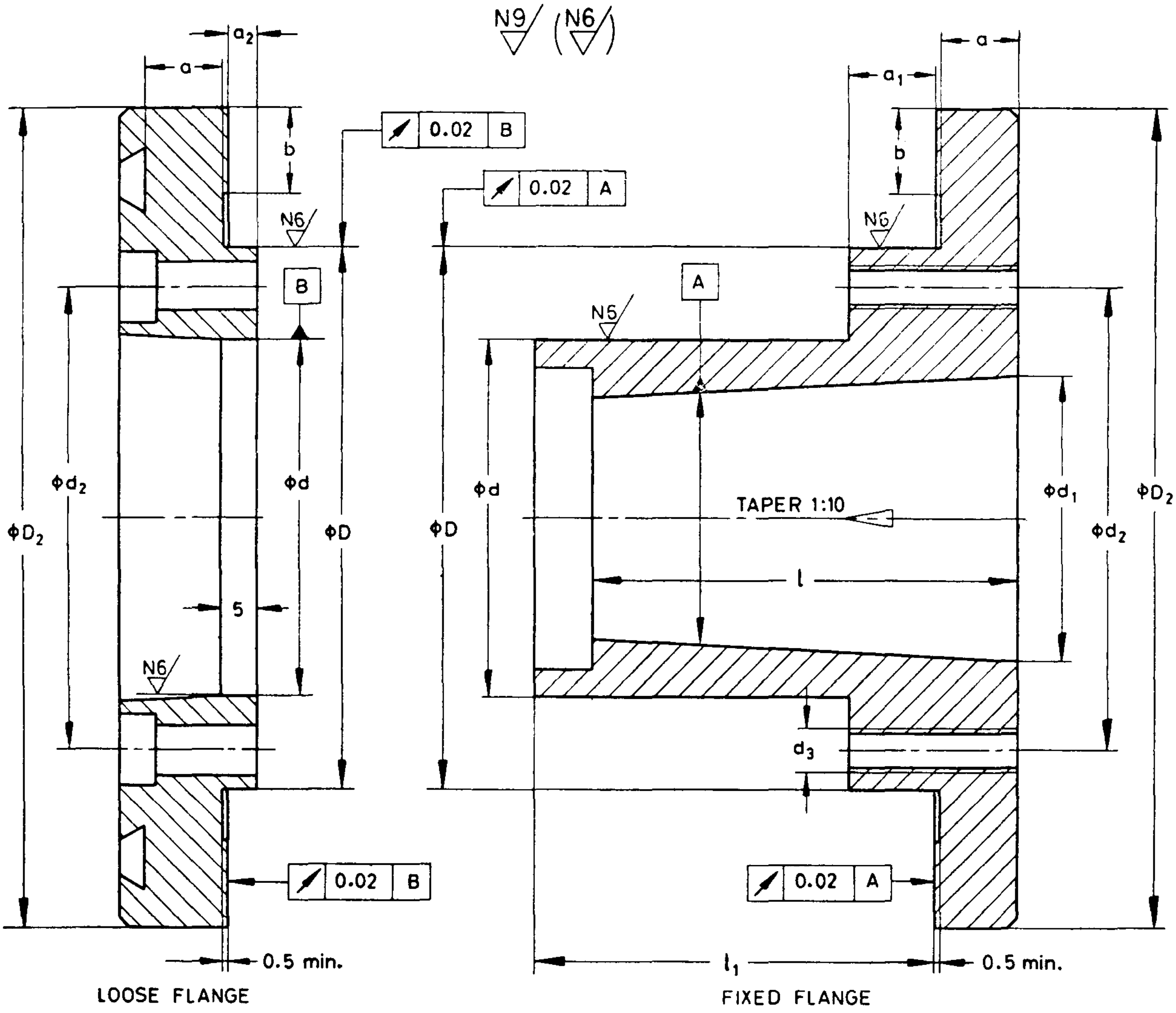
3.1 While clamping the grinding wheels spacer of flexible material (rubber, soft cardboard, felt leather, etc) with thickness 0·2 to 1 mm, shall be placed between the grinding wheel and the faces of the mounting flanges. This is to avoid undue stress in grinding wheel due to irregularities on the surface of the grinding wheel checks. To transmit the clamping force uniformly on to the body of the grinding wheel, the screws clamping the two flanges shall be tightened on the cross and it is recommended to retighten the screws at least three times in succession.

3.2 In order to allow for maximum adjustment of the loose flange at the time of tightening, its bore shall be provided with a cylindrical portion of 5 mm maximum length, on the side which is pressed (wheel side), the remaining length being tapered slightly towards the opposite side (*see* Fig. 1 and Fig. 2).

3.3 Before mounting, it shall be ensured that the outside diameter of the wheel or its thickness which is pressed does not exceed the standard values on the basis of which the flange dimensions have been fixed (*see* Table 1).

3.4 For recessed wheels, the diameter of the recess shall be greater than the outside diameter of the flange by at least 10 mm.

3.5 Suitable holes shall be provided to facilitate for lifting the grinding wheels of sizes 400 mm and above (*see* Appendix A).



Note 1 — The hub flanges need not conform to the pictorial representation, only the dimensions specified are to be adhered to.

Note 2 — The departure of flatness on width of 'b' shall be concave only.

FIG. 2 DETAIL DIMENSIONS FOR HUB FLANGES

APPENDIX A

(*Clauses* 2.3 *and* 3.5)

POSITION OF GROOVES

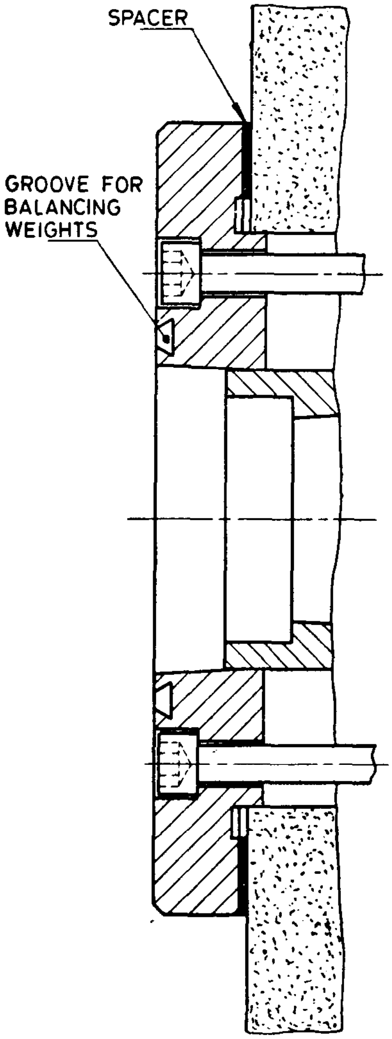


FIG. 3 POSITION OF GROOVE FOR PLACING BALANCING WEIGHTS FOR GRINDING WHEEL OF SIZE 400 mm AND ABOVE

EXPLANATORY NOTE

This standard was first published in 1964. The committee responsible for the preparation of this standard decided to revise the same to bring it in line with latest ISO and DIN standards.

In the present revision, the following are the salient features:

a) The title of the standard in the earlier version was 'Mounting Dimensions for Grinding Wheels'. The title of the standard has been changed.

b) Mounting dimensions for grinding wheel bores (D) 254 mm, 355·6 mm and 508 mm have been included.

c) The dimensions for taper shaft ends of grinding wheel spindles have been excluded.

d) The size of bore 355·6 mm is not covered in relevant Indian Standards on grinding wheel, that is, IS : 2324 (Part 2)-1985 'Bonded Abrasive Grinding Wheels: Part 2 Dimensions' but the size is also being used by the industry and therefore, included in this present revision.

While preparing this standard, assistance has been derived from DIN 6375 (Part 1)-1979 and DIN 6375 (Part 2)-1981 'Hub flanges with circle of screw holes for mounting plain grinding wheel' and also ISO : 666-1975 'Mounting of plain grinding wheels by means of hub flanges'.

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